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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,035	12/15/2003	Krishnendu Kar	89190.115203/DP310556	4768

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EXAMINER	
DOUGHERTY, ANTHONY T	
ART UNIT	**PAPER NUMBER**
2863	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/737,035	KAR ET AL.	
	Examiner	Art Unit	
	Anthony T. Dougherty	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *23-34* is/are allowed.

6)☒ Claim(s) *1-11,13 and 14* is/are rejected.

7)☒ Claim(s) *12 and 15-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-7, 9-11, 13, and 14 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,235,254 to Murphy et al.

With regard to claim 1 Murphy et al. discloses a gas injection device for injecting into an air stream a flow of gas to simulate exhaust gas flow into a system (see abstract), with at least one mass flow device with gas flowing through it at an actual rate (see column 10 line 27-35 & Figure 2), an air flow device with air flowing through it at an actual rate to form the airstream (see column 10 line 19-23 & Figure 2), and the gas enters the airstream to simulate exhaust gas flow into the system (see column 10 line 32-33).

With regard to claim 4, and applying the rejection of claim 1 above, Murphy et al. discloses the gas is selected from a group consisting of carbon monoxide, nitrogen oxides, carbon dioxide, nitrogen, hydrocarbons, and any combination thereof (see table 1 column 11 & column 12).

With regard to claim 5, and applying the rejection of claim 4 above, Murphy et al. discloses the device includes more than one mass flow device with a different gas flowing through each of the mass flow devices (see Figure 2 reference numerals 342 and 350 & column 10 line 19-35).

With regard to claim 6, and applying the rejection of claim 1 above, Murphy et al. discloses the air flow device comprises a valve, a blower and an airmeter (see column 10 line 65 through column 11 line 9 & Figure 4).

With regard to claim 7, and applying the rejection of claim 6 above, Murphy et al. discloses the valve has a response time of approximately 150 ms (see column 11 line 1).

With regard to claim 9, and applying the rejection of claim 6 above, Murphy et al. discloses the blower operates to move air at approximately 250 g/s (see column 24 line 14-40).

With regard to claim 10, and applying the rejection of claim 6 above, Murphy et al. discloses the air flow device includes a manifold (see Figure 2).

With regard to claim 11, and applying the rejection of claim 10 above, Murphy et al. discloses a plurality of transducer/thermocouple devices (see column 9 line 64-66).

With regard to claim 13, and applying the rejection of claim 1 above, Murphy et al. discloses an input device for inputting setpoint data including a target gas flow rate and a target air flow rate with a controller connected to the input device, the mass flow device, and the air flow device (see column 19 line 12-17).

With regard to claim 14, and applying the rejection of claim 13 above, Murphy et al. discloses the controller is a PC based controller (see column 19 line 12-17).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,235,254 to Murphy et al. in view of U.S. Patent No. 6,314,948 to Cathcart.

The primary reference to Murphy et al. discloses a gas injection device for injecting into an air stream a flow of gas to simulate exhaust gas flow into a system (see abstract), with at least one mass flow device with gas flowing through it at an actual rate (see column 10 line 27-35 & Figure 2), an air flow device with air flowing through it at an actual rate to form the airstream (see column 10 line 19-23 & Figure 2), and the gas enters the airstream to simulate exhaust gas

flow into the system (see column 10 line 32-33). However, Murphy et al. fails to disclose a pintle valve as a mass flow device.

The secondary reference to Cathart discloses a pintle valve as a mass flow device (see column 4 line 56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have specified the mass flow device of Murphy et al. be a pintle valve as taught by Cathart.

Accordingly, such a modification would have been obvious since Cathart teaches a pintle valve is a sufficient means for a mass flow device (see column 4 line 56), thereby suggesting the obviousness of the modification.

5. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,235,254 to Murphy et al. in view of U.S. Patent No. 6,311,679 to Druzhinina et al.

The primary reference to Murphy et al. discloses a gas injection device for injecting into an air stream a flow of gas to simulate exhaust gas flow into a system (see abstract), with at least one mass flow device with gas flowing through it at an actual rate (see column 10 line 27-35 & Figure 2), an air flow device with air flowing through it at an actual rate to form the airstream (see column 10 line 19-23 & Figure 2), and the gas enters the airstream to simulate exhaust gas flow into the system (see column 10 line 32-33). However, Murphy et al. fails to disclose an EGR valve as a mass flow device.

The secondary reference to Druzhinina et al. discloses an EGR valve as a mass flow device (see column 3 line 4-17).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have specified the mass flow device of Murphy et al. be an EGR valve as taught by Druzhinina et al.

Accordingly, such a modification would have been obvious since Druzhinina et al. teaches an EGR valve is a sufficient means for a mass flow device (see column 3 line 4-17), thereby suggesting the obviousness of the modification.

6. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,235,254 to Murphy et al. in view of U.S. Patent No. 6,401,694 to Minowa et al.

The primary reference to Murphy et al. discloses a gas injection device for injecting into an air stream a flow of gas to simulate exhaust gas flow into a system (see abstract), with at least one mass flow device with gas flowing through it at an actual rate (see column 10 line 27-35 & Figure 2), an air flow device with air flowing through it at an actual rate to form the airstream (see column 10 line 19-23 & Figure 2), and the gas enters the airstream to simulate exhaust gas flow into the system (see column 10 line 32-33). However, Murphy et al. fails to disclose an ETC as a valve.

The secondary reference to Druzhinina et al. discloses an ETC as a valve (see claim 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have specified the valve of Murphy et al. be an ETC valve as taught by Minowa et al.

Accordingly, such a modification would have been obvious since Minowa et al. teaches an ETC is a sufficient means for a valve (see claim 11), thereby suggesting the obviousness of the modification.

Allowable Subject Matter

7. Claims 23-32, 33, and 34 allowed.

8. Claims 12, and 15-22 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 12 is the inclusion of the limitations of a gas injection device with a manifold positioned between a valve and a blower of an air flow device with a first transducer/thermocouple positioned upstream of the valve, a second transducer/thermocouple positioned between the valve and the manifold, and a third transducer/thermocouple device positioned between the manifold and the blower. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been

found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 15-18 is the inclusion of the limitations of a gas injection device with an air flow device which issues an air flow rate signal indicative of at the actual air flow rate, receives an air flow control signal and is configured to control the actual air flow rate dependent upon the air flow control signal, the air flow control signal being dependent upon the target air flow rate contained within the setpoint data, the controller comparing the actual air flow rate with the target air flow rate and adjusting the air flow rate signal depending upon the comparison of the actual air flow rate with the target air flow rate, the controller being configured to adjust the air flow control signal such that the actual air flow rate is substantially equal to the target air flow rate. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 19-22 is the inclusion of the limitations of a gas injecting device with an output controller connected to a controller where the controller issues an output signal dependent upon either the gas flow rate signal and the air flow rate signal and the output device receives either the actual gas flow rate or the air flow rate. It is these limitations found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 23-34 is the inclusion of the method steps being injecting a precise concentration of a gas into an air stream to simulate exhaust gas flow into an external system of know volume by selecting a desired air flow rate at which the air is injected into the external system, calculating a time period during which the airstream is injected based on the desired gas concentration, the desired air flow rate, and the volume of the external system, and ceasing injection at the end of the time period. It is these steps found in each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,405,745 to Kar et al. because it teaches a gas injection system for simulating exhaust with multiple injection points.

U.S. Patent No. 4,823,591 to Lewis because it teaches calibrating an exhaust flow measurement device.

U.S. Patent No. 5,650,565 to Nagy et al. because it teaches testing exhaust emissions using a diluter.

U.S. Patent No. 6,553,818 to Blumke et al. because it teaches calibrating an exhaust measuring device.

U.S. Patent No. 6,387,706 to Eden because it teaches compensating an exhaust emission measuring device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T. Dougherty whose telephone number is (571) 272-2273. The examiner can normally be reached on Monday through Friday from 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atd

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